DETAILED ACTION

1.   Claims previously allowed: 1, 5-9, 11, 13, 17 and 19-28 in Office Action dated on

08/18/2010. This Supplemental examiner amendment intended to fix the dependency

of claim 20 which was depended on canceled claim 18.

EXAMINER'S AMENDMENT

2.   An examiner's amendment to the record appears below. Should the changes

and/or additions be unacceptable to applicant, an amendment may be filed as provided

by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be

submitted no later than the payment of the issue fee.

      Authorization for this examiner's amendment was given in a telephone interview

with Andrew Tibbetts, Reg. No. 65,139 on 07/07/2010.

      Please amend the application as follow:

1.   (Previously presented) At least one computer-readable storage medium having
instructions recorded thereon which, when executed, perform a method of managing a
file system filter, the method comprising:
      identifying an integer altitude value of a minifilter;
      mapping an altitude, defined by the integer altitude value, of the minifilter to one
of a plurality of legacy filter order groups, the mapping comprising:
             determining an altitude range associated with at least a portion of the
      legacy filter order groups;
             determining whether any altitude range of a legacy filter order group
      encompasses the integer altitude value of the minifilter;

if an altitude range of a legacy filter order group encompasses the integer altitude value of the minifilter, then inserting the minifilter into the legacy filter order group; and

if no altitude range of a legacy filter order group encompasses the integer altitude value of the minifilter, then creating a new filter order group and inserting the minifilter into the new filter order group.

2-4.   (Cancelled)

5.   (Previously presented) The at least one computer-readable storage medium of claim 1, wherein multiple instances of the filter manager attach to a file system stack.

6.   (Previously presented) The at least one computer-readable storage medium of claim 5, wherein each instance of the filter manager is associated with a unique interval of altitude values.

7.   (Previously presented) The at least one computer-readable storage medium of claim 1, wherein the minifilter is coded to permit dynamic loading and/or unloading to a filter stack.

8.   (Previously presented) The at least one computer-readable storage medium of claim 7, wherein the altitude of the minifilter ensures that the minifilter, if unloaded, will reload to its previous position in the filter stack.

9.   (Previously presented) The at least one computer-readable storage medium of claim 1, further comprising instructions defining dynamically associating the minifilter with at least one frame.

10.   (Cancelled)

11.   (Previously presented) The at least one computer-readable storage medium of claim 9, wherein a numerical interval is associated with each frame.

12.   (Cancelled)

13.   (Previously presented) A computer operable to manage a file system filter, the computer comprising at least one processor programmed to:

load a minifilter to a file system, the file system comprising at least one filter manager frame;

determine an integer altitude value associated with the minifilter;

determine an altitude range [L, H] associated with each at least one filter manager frame, wherein L is the lower boundary value of the altitude range and H is the upper boundary value of the altitude range;

determine whether any altitude range associated with the at least one filter manager frame encompasses the integer altitude value associated with the minifilter;

if an altitude range associated with a filter manager frame encompasses the integer altitude value associated with the minifilter, such that $L<X<H$ where X is the altitude of the minifilter, then insert the minifilter into the filter manager frame; and

if no altitude range associated with a filter manager frame encompasses the integer altitude value associated with the minifilter, then:

determine a lower altitude range $[L_1, H_1]$ and a higher altitude range $[L_2, H_2]$ closest to the integer altitude value X, such that X is greater than the upper boundary value of the lower altitude range H_1 and less than the lower boundary value of the higher altitude range L_2;

insert the minifilter into the filter manager frame having the higher altitude range; and

adjust the higher altitude range to $[X, H_2]$.

14. – 16.   (Cancelled)

17.   (Previously presented) The computer of claim 13, wherein the at least one processor is further programmed to update a filter object associated with the minifilter to point to the filter manager frame into which the minifilter has been inserted.

18.   (Cancelled)

19.   (Previously presented) The computer of claim 13, wherein the at least one processor is further programmed to:

      initialize a filter object associated with the minifilter to point to the filter manager frame into which the at least one minifilter has been inserted.

20.   (Currently amended) The computer of claim [[18]] 13, wherein the at least one processor is further programmed to, if no lower or higher altitude range is determined to be closest to the integer value X, then create a new filter manager frame and arranging the new filter manager frame at the top of the file system stack.

21.   (Previously presented) The computer of claim 20, wherein the at least one processor is further programmed to pre-allocate the new filter manager frame for management of the minifilter.

22.   (Previously presented) The computer of claim 21, wherein the at least one processor is further programmed to call the filter manager's file system notification routine to submit a request to register for file system notifications.

23.   (Previously presented) The computer of claim 22, wherein the at least one processor is further programmed to, if the request to register is successful:

      insert the minifilter into the new frame;

      initialize the filter manager frame altitude range upper and lower boundary values to the altitude value of the minifilter such that the altitude range is [H, X]; and

      update a filter object associated with the minifilter to point to the new frame.

24. (Previously presented) The computer of claim 22, wherein the at least one processor is further programmed to, if the request to register is unsuccessful:

    remove the new frame from the filter stack;

    extract the altitude interval from the next lower, now top-most, frame in the stack;

    collapse the at least one minifilter into the top-most frame; and

    adjust the frame interval so that the upper boundary value is set equal to the value of the altitude of the at least one minifilter, such that the adjusted interval is [L, X].

25. (Previously presented) The computer of claim 22, wherein the at least one processor is further programmed to determine the identity of a frame calling into the file system notification routine.

26. (Previously presented) The computer of claim 25, wherein the at least one processor is programmed to determine the identity of the frame by counting the number of all filter manager device objects, N, already in the stack, from top to bottom, using existing application programming interfaces, and wherein each device object represents a frame.

27. (Previously presented) The computer of claim 26, wherein the at least one processor is further programmed to initialize a counter to N and decrementing the counter for every node encountered from the bottom to the top of the stack.

28. (Previously presented) The computer of claim 27, wherein a zero value in the counter represents the position of the frame that corresponds to the attachment of the filter manager.

29. – 34. (Cancelled)

Conclusion

3.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to BAOQUOC TO whose telephone number is (571)272-4041. The examiner can normally be reached on 8:30 - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Breene can be reached on 571-272-4107. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/BAOQUOC TO/
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